

# Dissimilatory Metal Reduction by Anaeromyxobacter Species



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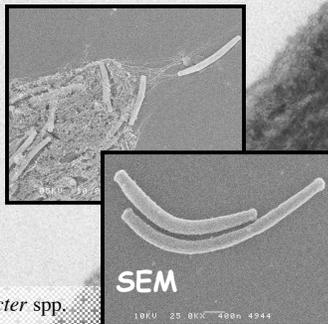


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Recent findings suggest that *Anaeromyxobacter* populations play relevant roles in metal and radionuclide reduction and immobilization at contaminated DOE sites. This research effort will characterize *Anaeromyxobacter dehalogenans* strain 2CP-C as well as other *Anaeromyxobacter* isolates in hand, and assess their contribution towards metal detoxification and plume stabilization under environmentally relevant conditions.

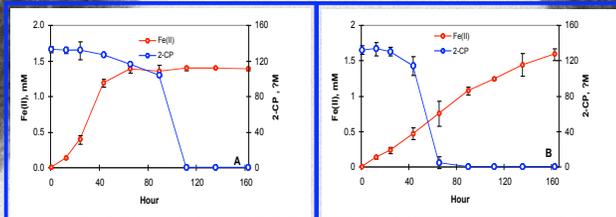
- ➔ Explore and compare U(VI) reduction in *Anaeromyxobacter* spp.
- ➔ Design 16S rRNA gene-based approaches to detect and quantify *Anaeromyxobacter* species (direct and nested PCR, real-time PCR)
- ➔ Use these nucleic acid-based tools to investigate the relative contributions of *Anaeromyxobacter* species towards metal reduction in microcosm experiments and at the FRC site.



SEM

10KV 25.0kX 700n 4944

## Chlororespiration in the presence of soluble and amorphous forms of ferric iron

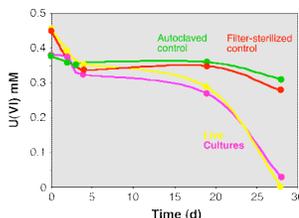


Dechlorination of 2-CP in the presence of (A) ferric pyrophosphate and (B) amorphous Fe(III) oxyhydroxide. Results are the averages of duplicate cultures with error bars indicating standard deviation (AEM, May 2003).

## Reduction of U(VI) by *A. dehalogenans* strain 2CP-C

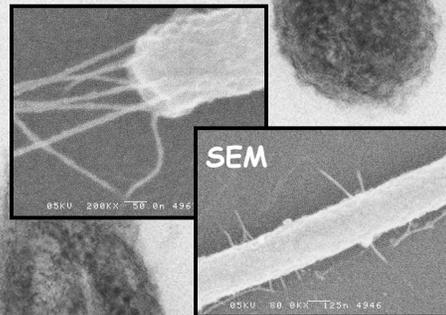
Reduction of U(VI) to U(IV) in cultures of *Anaeromyxobacter dehalogenans*. The data show the amount of U(VI) reduced after a 1-hour incubation period.

Culture conditions	U(VI) reduced
Fumarate	761 ppb
Fe (III) oxyhydroxide	779 ppb
Medium control	103 ppb



Reduction of uranyl carbonate by *Anaeromyxobacter dehalogenans* with acetate as the electron donor. The cultures received a 1% (vol/vol) inoculum of fumarate/acetate-grown cells

The genome of *Anaeromyxobacter dehalogenans* strain 2CP-C is being sequenced by JGI



SEM

05KV 200kX 50.0n 496

## Performers



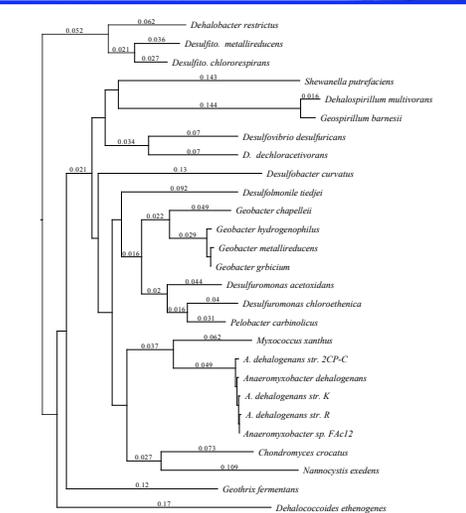
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## Support



Phylogenetic tree based on nearly complete 16S rRNA gene sequences